

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
14 October 2004 (14.10.2004)

PCT

(10) International Publication Number
WO 2004/088346 A1

(51) International Patent Classification⁷: **G01R 33/565**

(21) International Application Number:
PCT/GB2004/001461

(22) International Filing Date: 2 April 2004 (02.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0307883.9 4 April 2003 (04.04.2003) GB

(71) Applicants (for all designated States except US): **THE INSTITUTE OF CANCER RESEARCH** [GB/GB]; 123 Old Brompton Road, London, Greater London SW7 3RP (GB). **THE ROYAL MARSDEN NHS TRUST** [GB/GB]; Downs Road, Surrey SM2 5PT (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LEACH, Martin,**

Osmund [GB/GB]; 24 Blenheim Gardens, Wallington, Surrey SM6 9PP (GB). **REINSBERG, Stefan, Alexander** [DE/GB]; 63 Eastdean Avenue, Epsom, Surrey KT18 7SW (GB). **MOORE, Elizabeth, May** [GB/GB]; 6C Blean Grove, Penge SE20 8QU (GB).

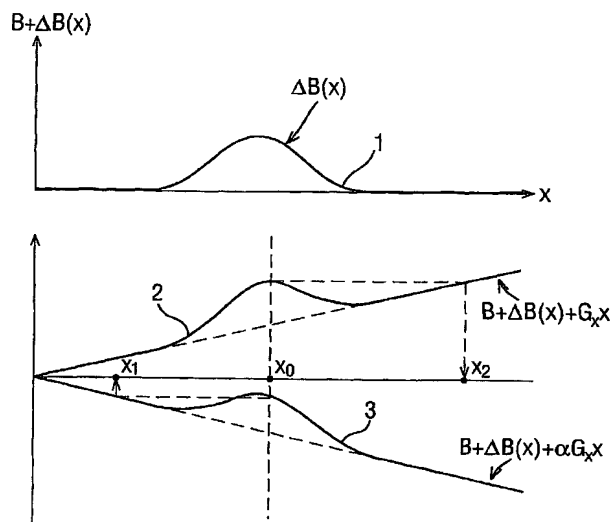
(74) Agents: **HACKNEY, Nigel et al.**; Mewburn Ellis LLP, York House, 23 Kingsway, London, Greater London WC2B 6HP (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

[Continued on next page]

(54) Title: **THORIUM-227 FOR USE IN RADIOTHERAPY OF SOFT TISSUE DISEASE**



(57) Abstract: A method and apparatus are disclosed for concurrently acquiring two sets of Magnetic Resonance Imaging (MRI) image data during the same image data acquisition interval in which the magnetic field associated with acquisition of the first data set is caused to differ from the magnetic field associated with acquisition of the second data set. The method includes repeatedly changing the magnetic field in a pre-determined manner during the continuous acquisition of image data comprising the two sets. The relationship between the differing magnetic fields, most preferably the relationship between differing gradient fields, is then employed in conjunction with the first and second data sets to correct image distortions arising in images constructed according to the data in either set alone.



Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.